CLAIMS

We claim:

1. An isolated nucleotide sequence of the wild-type protein kinase regulatory subunit 1A gene, wherein said sequence is selected from the group consisting of SEQ ID NO:27, SEQ ID NO:34, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:45, SEQ ID NO:51, SEQ ID NO:54, SEQ ID NO:58, and SEQ ID NO:61.

2. An isolated amino acid sequence of the wild-type protein kinase regulatory subunit 1A, wherein said sequence is selected from the group consisting of SEQ ID NO:28, SEQ ID NO:35, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:43, SEQ ID NO:46, SEQ ID NO:52, SEQ ID NO:55, SEQ ID NO:59, and SEQ ID NO:62.

3. An nucleotide sequence of mutant protein kinase regulatory subunit 1A gene, wherein said mutation is selected from the group consisting of SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:36, SEQ ID NO:41, SEQ ID NO:44, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:53, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:60.

4. A method for detecting a nucleic acid encoding a mutant protein kinase regulatory subunit 1A gene, comprising:

a) providing:

i) a biological sample from a patient suspected of containing a nucleic acid sequence encoding said mutant protein kinase regulatory subunit 1A gene, and

ii) a polynucleotide sequence comprising at least ten nucleotides capable of hybridizing to said nucleic acid sequence;

b) hybridizing said polynucleotide sequence to said nucleic acid sequence encoding a mutant protein kinase regulatory subunit 1A gene to produce a hybridization complex; and

c) detecting said hybridization complex.

5. The method of Claim 4, wherein said mutant protein kinase regulatory subunit 1A gene comprises a mutant exon having a nucleotide sequence selected from the group consisting of SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:36, SEQ ID NO:41, SEQ ID NO:44, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:53, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:60.

6. The method of Claim 4, further comprising the step of amplifying said nucleic acid encoding a mutant protein kinase regulatory subunit 1A gene before said hybridizing step.

7. The method of Claim 6, wherein said amplifying is accomplished using primers selected from the group consisting of SEQ ID NOS:1-26 and SEQ ID NOS:63-66.

8. The method of Claim 4, wherein said detecting step comprises the step of detecting the presence of said nucleic acid sequence encoding said mutant protein kinase regulatory subunit 1A gene.

9. The method of Claim 8, wherein said detecting is by Northern blotting.

10. The method of Claim 4, wherein said patient has Carney complex.

11. The method of Claim 4, wherein said patient exhibits at least one skin pigmentation defect.

12. The method of Claim 4, wherein said patient has a least one lesion selected from the group consisting of adrenal tumors, thyroid tumors, pituitary tumors, myxomas, psammomatous melanotic schwannomas and testicular tumors.

13. The method of Claim 4, wherein said mutant protein kinase regulatory subunit 1A gene is a truncation mutant.

14. The method of Claim 4, wherein said method further comprises restriction digestion of said nucleic acid in said biological sample.

15. The method of Claim 4, further comprising the step of assaying said biological sample from said patient for protein kinase A activity.

16. The method of Claim 15, further comprising the step of assaying said biological sample for PK1 inhibition of protein kinase A activity.

17. A method for detecting a nucleic acid encoding a mutant protein kinase R1A, comprising:

a) providing:

i) a biological sample from a cell line suspected of containing a nucleic acid sequence encoding said mutant protein kinase regulatory subunit 1A gene, and

ii) a polynucleotide sequence comprising at least ten nucleotides capable of hybridizing to said nucleic acid sequence;

b) hybridizing said polynucleotide sequence to said nucleic acid sequence encoding a mutant protein kinase regulatory subunit 1A gene to produce a hybridization complex; and

c) detecting said hybridization complex.

18. The method of Claim 17, wherein said mutant protein kinase regulatory subunit 1A gene comprises a mutant exon having a nucleotide sequence selected from the group consisting of SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:36, SEQ ID NO:41, SEQ ID NO:44, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:53, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:60.

19. The method of Claim 17, further comprising the step of amplifying said nucleic acid encoding a mutant protein kinase regulatory subunit 1A gene before said hybridizing step.

20. The method of Claim 19, wherein said amplifying is accomplished using primers selected from the group consisting of SEQ ID NOS:1-26 and SEQ ID NOS:63-66.

21. The method of Claim 17, wherein said detecting step comprises the step of detecting the presence of said nucleic acid sequence encoding said mutant protein kinase regulatory subunit 1A gene.

22. The method of Claim 17, wherein said detecting is by Northern blotting.

23. The method of Claim 17, wherein said cell line is from a patient with Carney complex.

24. The method of Claim 17, wherein said cell line is from a patient who exhibits at least one skin pigmentation defect.

25. The method of Claim 17, wherein said cell line is from a patient with at least one lesion selected from the group consisting of adrenal tumors, thyroid tumors, pituitary tumors, myxomas, psammomatous melanotic schwannomas and testicular tumors.

26. The method of Claim 25, wherein said cell line is obtained from said at least one or more lesion.

27. The method of Claim 17, wherein said mutant protein kinase R1A is a truncation mutant.

28. The method of Claim 17, wherein said method further comprises restriction digestion of said nucleic acid in said biological sample.

29. The method of Claim 17, further comprising the step of assaying said cell line for protein kinase A activity.

30. The method of Claim 29, further comprising the step of assaying said cell line for PK1 inhibition of protein kinase A activity.

31. An isolated antibody directed against protein kinase regulatory subunit 1A protein.

32. The antibody of Claim 31, wherein said antibody is directed against wild-type protein kinase regulatory subunit 1A protein.

33. The antibody of Claim 31, wherein said antibody is directed against mutant protein kinase R1A regulatory subunit 1A gene protein.

34. A method for detecting a protein kinase regulatory subunit 1A, comprising:

a) providing:

i) a biological sample suspected of containing protein kinase regulatory subunit 1A, and

ii) an antibody directed against said protein kinase regulatory subunit 1A;

b) exposing said biological sample to said antibody to form a complex comprising protein kinase regulatory subunit 1A bound to said antibody; and

c) detecting said complex.

35. The method of Claim 34, wherein said biological sample is from a patient suspected of having Carney complex.

36. The method of Claim 34, wherein said protein kinase regulatory subunit 1A is a mutant protein kinase regulatory subunit 1A.

37. The method of Claim 34, wherein said antibody is selected from the group consisting of antibodies directed against wild-type protein kinase regulatory subunit 1A and antibodies directed against mutant protein kinase regulatory subunit 1A.

38. The method of Claim 34, wherein said method is selected from the group consisting of Western blotting, immunoassays, and immunohistochemistry.